

*Fitch (S. S.)*

THE INFLUENCE OF INTELLECTUAL CULTIVATION IN IMPROVING THE SOCIAL  
CONDITION AND PROLONGING LIFE.

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A LECTURE

INTRODUCTORY TO A COURSE OF LECTURES,

ON

ANATOMY AND PHYSIOLOGY;

DELIVERED BEFORE THE

PENNSYLVANIA LIBRARY AND LITERARY  
INSTITUTE,

At their Hall, Northeast Corner of Eighth and Chesnut Streets,

DECEMBER 22, 1837.

BY ✓

SAMUEL S. FITCH, A.M. M.D.

*Supplied by Miss Armady*

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*Philadelphia, Jan. 11, 1838.*

SIR:

At a stated meeting of the Pennsylvania Library and Literary Institute, held on the 10th inst., the following Resolution was unanimously adopted.

“*Resolved*, That the thanks of this Institute be presented to Dr. S. S. Fitch, for the eloquent and interesting Lecture delivered by him before the Institute on the 22d of December last; and that a copy be requested for publication.”

We have the pleasure of being the medium of communicating to you the above Resolution, and hope it may not be incompatible with your feelings or inclinations to gratify the desire therein expressed.

Respectfully yours,

F. A. PLUMMER,  
J. B. LIPPINCOTT, } *Committee.*  
W. L. LANE.

TO DR. S. S. FITCH.

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*Philadelphia, Jan. 12, 1838.*

MESSRS. F. A. PLUMMER, J. B. LIPPINCOTT, W. L. LANE,

GENTLEMEN:

As my object in the delivery of the Lecture before your Association, on the 22d ultimo, was to



encourage a highly meritorious Association of young men, united in the pursuit of knowledge, if you deem it worthy of a greater extension through the medium of the press, it is at your service, with my thanks for the honor.

Respectfully your friend,

And very humble servant,

S. S. FITCH.

## INTELLECTUAL CULTIVATION.

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"THE greatest study of mankind is man," considered in his social, intellectual, and physical relations. Impressed upon him is the disposition to social existence, to meet his fellows, to congregate with his kind. Mutual wants, and mutual weakness, at a very early period, must have induced mutual co-operation, and mutual confidence. All accounts, and all traditions agree that there was a period when man existed in a very rude state ; society without law, and intercourse without courtesy. Nothing binding except convenience and interest. Consequently, any difficulty or embarrassment in intercourse, would produce total estrangement : such, for exmple, as arose from tribes or communities speaking a different language. These tribes seeking security from their foes, more fertile lands, or more genial climes, would naturally lead a wandering existence, until accident, choice, or some gifted mind should fix their state, and found their dominion. Communities once settled, time would increase their numbers and strength. The desire of distinction would deck the warrior, and stimulate the sage. The love of luxury, and the allurements of pleasure, would induce a desire of gain, develop artificial wants, and diffuse through the state a love of splendor, grandeur and beauty. These tastes once formed, these desires once aroused, no obstacles of nature, no opposition of men would be found sufficient to deter the bold projectors from the commencement, and generally the completion, of their enterprises. Thus, from the sterile plains of Attica, arose the city of Athens and the proud Parthenon ; and

from a few huts on the banks of the Tiber, sprang the city of Rome with its thousand temples, and its millions of souls. Should we look back to the great empires that preceded Greece and Rome; should we pause over Thebes with its hundred gates, or Babylon with its lofty walls and hanging gardens, we should arrive at the conclusion that the origin and progress of their social state differed very little from those cities we have named as their successors in the march of empire. From this point in their social state, alike is their history, for alike was their fate. The great nations of antiquity founded the stability of their greatness upon the same basis, and the same causes destroyed them all. Physical strength, the power of the strongest arm, brute force, formed at once the shield and buckler of these nations, and the only binding principle that could continue their perpetuity.

Prosperous commerce, and victorious arms procured great wealth to their states, and from wealth came the destroyer that was to annihilate their greatness. This was *luxury*—the love of ease—the voluptuousness of pleasure. These dissolved the cement of their social condition, broke the barriers of their strength, and unnerved the arm once “invincible in war,” making them an easy prey to nations not yet weakened by repose or enervated by luxury.

Thus at the great battle of Arbela, which terminated the Persian empire, the appearance of the Persian army was that of a splendid cavalcade, strikingly contrasting with the appearance of their foes, the almost naked and hardy Grecian soldiers. Ancient and enervated Egypt was overrun, and for a long time governed by the rude shepherd kings on her borders. Greece, sunk in luxury, succumbed to the Roman arms; Rome fell beneath the barbarian Goths and Vandals. Yet later, and last of all, the beautiful city of Constantinople, capital of the eastern empire, yielded to the arms of the warlike Osmanlis, a horde of Tartars from Turkistan.

As no stability is found in the condition of nations or individuals based on physical strength alone, we turn to consider man in his intellectual character. Intellect is the principle that guides and governs the physical man. Physically considered, we are companions and fellows with the brutes. The wild Hottentot is,



physically compared, not far removed from the monkey. Intellectually considered, we rise so vastly in the scale of beings, as to be allied to the angels, and partakers in the nature of that vast mind that called worlds into existence, and established the order of the Universe. Mutual development has, and must always, precede any, or all improvements in our social condition. The social elevation of all the great nations of antiquity, could not have taken place without considerable mental and intellectual improvement; hence, we find all their improvements are in exact correspondence to their greater intellectual development over the barbarian nations, by whom they were surrounded.

The mental and intellectual culture of the Egyptians was so far advanced at a period earlier than tradition or history can now reach, as to have invented and employed written characters to convey their ideas. But the art of writing, and understanding their writings by whomsoever invented, soon became the property of their priests, and was hidden from the popular gaze by the most inviolable secrecy and unapproachable mysteries. Their writing has never become available to the more modern nations. Cadmus, the Phœnician, carried letters to Greece 1550 years before Christ. This forms the greatest epoch in the history of intellectual improvement amongst the Greeks; in comparatively few years they had books of history, fable and poetry. The Greeks taught the Romans the knowledge of letters, and from them it spread to all the nations of western Europe and the British isles, from whom we are descended. Although, as a consequence of having the art of writing, and thus being able to preserve and disseminate the knowledge and sayings of their sages; yet so tedious and expensive was the multiplication of their writings by the pen or style, that all written knowledge was necessarily confined to a few, whilst the great mass of all the ancient nations were sunk in the greatest ignorance, and generally were willing slaves. Insatiate thirst for gain, and love of power, were the great governing principles that actuated their physical strength, whilst very little true science was displayed in their halls of philosophy, or on the field of battle. Although somewhat intellectually improved, yet a soul was wanting to their social state; the great principles of justice were

unknown, or, at least, but little practised; Athens in a few instances offers an exception. We have all heard of the integrity of Aristides; but, in general, rank injustice governed all intercourse between the strong and weak; this alone was sufficient to render their knowledge rather a curse than blessing, and effectually paved the way to the destruction of their social state. Without acting on the principles of justice, neither nations nor individuals can long continue in peace or prosperity. In other points of intellectual development, we might show that it was very imperfect; one only will be noticed: *All these nations worshipped Gods of wood and stone.*

Passing over that long intellectual and social night that succeeded the subversion of the Roman empire, we arrive at that period when literature begins to assume form, and knowledge permanency. This was the epoch of the discovery of the art of printing in Germany, about the year 1450; although several cities claimed the honor of the discovery, yet it is generally agreed to award this distinguished honor to John Faustus, of Mentz, in opposition to Coster, of Harlem, and Guttenberg, of Strasburg. The advantages resulting to mankind from this discovery, never have been, and never can be fully appreciated. It was to human intellect the breaking of day after a long night. Some gleams of light, it is true, had preceded this, but these only precursed the morn which appeared when the art of printing was discovered. The superstition of the age, for a short time, impeded the extensive spread of this art; yet in a few years another event was to occur, which should give freedom to thought, and expansion to mind. This was the Reformation that took place in 1521, which aroused a spirit of inquiry never to be suppressed to the end of time. Before the discovery of the art of printing, the knowledge or discoveries of individuals or communities was in a great measure lost where found, or so sparsely disseminated as to do but little towards illuminating mankind. Luther's writings would have been of little avail, if the art of printing had been unknown; but, with its powerful aid, they were in a few months known and read every where, from the Pyrenees to the Vistula, and from the Gulf of Venice to the Baltic. From this period, we may date the



permanent expansion of the human intellect. Discoveries, how ever remote, by the multiplication of printed papers and books, were soon given to all the world, exciting in all minds a desire of greater advancement, and a more extended knowledge of the powers of art, and the phenomena of nature. As a consequence, we soon find the annals of their succeeding years graced with some of the greatest names that have figured in science, literature, the arts, or adorned the pages of history ; many are the noble names that cluster around this illustrious period. I will mention a very few. In Astronomy, we soon find the great names of Copernicus and his opponent Tycho Brahe, renowned for the accuracy of his observations. Galileo, Torricelli, Kepler, whose *laws* will bear his name as long as the planets move in their orbitary planes. Huygens, the inventor of the Pendulum, and the great Sir Isaac Newton, who became a lawgiver in Celestial Mechanics.

The philosophy of all the ancients consisted of scholastic subtleties, and the most barren and absurd dialectics—disputations, without any reference to acknowledged facts, or the laws of nature: but the period now approached when philosophy, the sun of science, was to be thoroughly purged of its ancient absurdities, and placed upon a basis immovable as the great laws of nature. He to whom was entrusted this immortal work was Francis Bacon, Baron Verulam, Viscount of St. Albans, one of the most remarkable men that any age has ever produced, or of whom any country can boast. He was born in London in the year 1561, and is the father of the inductive philosophy. He taught that the great object of all inquiry is truth, and that truth is only to be learned by a careful study of nature; by the induction of known facts. By following these principles nearly all known phenomena have been explained, and most modern discoveries have been made. The science of medicine received its greatest impulse in 1620, when William Harvey, an English physician, made known his discovery of the circulation of the blood. Previously to this period this science was in almost utter darkness, but this discovery placed some parts of it amongst the exact sciences, and paved the way to such immense improvements as to place it at the head of all other sciences, whether we consider it as the result of many, or in the numerous

discoveries made to aid it, or in its power of alleviating suffering, healing disease, or prolonging life. We will not, in this place, pursue this subject any farther; suffice to say that nearly all the improvements of modern times date their strongest impulsive movement from the fifteenth, sixteenth, and the early part of the seventeenth centuries. The art of printing and the inductive philosophy are the two great agents that have laid the foundations of the present vast intellectual development and social improvement of the cultivated nations.

I wish to mention a few of those prominent traits that strikingly distinguish the moderns from the ancients. We must remark that all the great nations of antiquity were enabled to prevail over their barbarian, and, in some instances, effeminate opponents, by their intellectual superiority giving greater efficiency to their physical energies. Their intellectual supremacy and cultivation were exhibited in their stricter discipline, the formation of their camps, the perfection of their armor, their mode of fighting, and in their greater unity of action, and subordination to their generals. It was this that planted the Roman eagles from the isles of Britain to Abyssinia, and from the Pillars of Hercules to the Euphrates. The superiority of the moderns over the ancients is owing to this higher intellectual development, arising not from greater natural endowments, but from superior cultivation. It would require volumes to enumerate all the points of difference; two or three only will be noticed. The first we will mention is, that the ancients rarely used any power except that of the strongest arm. In a few instances they derived aid from machinery, propelled by men or animals, the wind or water. They tamed the elephant and bade him do their bidding, but never thought of subduing to their purposes those terrible agents that could convulse the whole physical world. They saw Etna and Vesuvius casting flames and smoke, and mountains to heaven: they saw whole provinces desolated and rent in sunder by earthquakes, but could never, in the wildest visions of fantasy, dream of curbing these terrible powers, and making them subservient to the necessities, the convenience, and even pleasures of men. This was reserved for later times and more cultivated minds. The first difference we will notice is the

invention and use of gunpowder. Although it is said, and by many admitted, that this substance, or something resembling it, was known in very early times to the Chinese, the Turks, Arabs and Moors of Spain, yet so little was it used as scarcely to deserve notice, until about the year 1340 it begins to be mentioned. In 1346 it was used at the battle of Cressy, and served to increase the slaughter of that memorable day. Its general use succeeding in a few years, changed the entire character of modern warfare, as contrasted with the ancient. Then physical strength in a great degree prevailed, as they fought mostly hand to hand. Now science prevails, and they ask of their generals great intellect rather than great corporeal proportions. Among rude nations great corporeal size, commanding mien, personal strength and courage are the greatest qualifications for enforcing respect and ensuring success; but with the moderns all depends on the intellectual superiority and education of their generals. When armies equally use gunpowder we are not so struck with its great superiority; but when it is employed against uncultivated people, unacquainted with its effects, then the importance of its auxiliary aid is seen to rise to the highest pitch of consequence. Thus Fernando Cortez, with a few hundred men, and a few *field pieces*, conquered the powerful kingdom of Mexico. His success, in a great degree, is attributable to the use of gunpowder. The splendid successes of Frederick the Great are now universally imputed to his intellectual superiority. Whilst history already pronounces Napoleon as one of the greatest, if not the greatest general that the world has ever seen, it also accords to him the possession of the highest intellect. This intellectual character, given to the operations of modern warfare, arises chiefly from the use of gunpowder.

The next great agent employed by the moderns, and that very recently, is steam. Although the power of steam and the mode of its generation were known more than one hundred years ago, yet the first great improvement which made steam profitably useful, was made by Mr. Watt, in the year 1763. Mr. Watt was a native of Glasgow, in Scotland. It was at first employed to drain coal mines of their superfluous water. To the citizens of the United States we are indebted for its first successful application to the pro-



pling of boats on our rivers, and ships at sea. As the invention of gunpowder changed the character and modes of warfare, so the discovery and successful application of steam power has almost changed the face of society, in its social aspect. The power of steam once felt, and its advantages fully perceived, the genius of a thousand intellects has been called into action to improve its application and modes of successful operation. Its application to rail roads is one of the most important. Steam chained, like a tiger, in its efforts to escape, propels ships across the ocean, drives the majestic boats upon the rivers, stemming the most powerful torrents, forces cars with their teeming multitudes, along the railways, raises rivers from the depths of mines, sets in motion the most stupendous machinery to aid human industry, and multiplies human capability millions of times: it almost annihilates time and space, and in its achievements far outstrips the brightest visions of fancy.

Another power I will mention. When the ancients saw the oak or the tower riven by the lightning, they henceforward considered the object scathed as sacred, because struck by the bolt of heaven. Most impious and hair-brained the thought of approaching it, or of attempting to guide it: but the moderns have learned its nature, and the laws by which it is governed. When they have seen it speed along the sky with the quickness of thought, mocking all opposition as it approaches the earth, destroying alike the mightiest trees of the forest and the strongest human habitations, and visiting with instant death the animals and men whom it meets, they have envied its power and speed, and now desire to curb this agent, and learn it to labor for man—to propel boats, machinery, &c. Besides employing its power, they are using its speed to carry communication for miles with a rapidity not capable of being stated by the minutest division of time yet known to us. Twenty-five miles of such communication are already in operation, and fully justify the most sanguine expectations. The speed far outstrips the flight of the swiftest bird or the strongest wind. It is demonstrated that when the necessary preliminaries are arranged, intelligence may be transmitted and answers received from Edinburgh to London, a distance of nearly eight hundred miles, in half

an hour. What thoughts does this suggest, that the time is coming when each day's event throughout this vast continent may be every where known on the same evening? when ships anchored at Cape Horn may receive instructions from Washington in half an hour? when, if an enemy touch our shores, in a very few minutes it will be known over the whole continent? when a resident in Calcutta may correspond with London two or three times on the same day? when the whole human family shall be brought together so as to form a community as active, quick and convenient in correspondence as now the residents of the same city? Time will not permit us to pursue these details farther: we will only detain you to mention a few of the results that have already taken place in our social and intellectual condition, which have chiefly arisen from the inductive philosophy, free discussion, the press, and the employment of the different powers already mentioned.

I. The first result we will notice, is, that the principle is now generally recognised that all men are born free and equal, and consequently, deserving of equal justice, equal protection, and perfect liberty, to pursue any occupation that does not violate the rights of others or the well-being of society. It is comparatively but a few years since, that a person so bold as to avow the doctrines of equal rights, freedom of speech, freedom of thought, freedom in the choice of pursuits, freedom of conscience, would have found his way to the confines of a prison, never again to see the light of day, or close his career by an ignominious death. Our country mostly owes its settlement to conflicts on these subjects, and their discussion and assumption have convulsed the whole structure of society in many European countries, and will do so, until they shall be acknowledged and granted, and guaranteed every where. It is true, that in their progress, they have in some instances, overturned the thrones of kings, and annihilated the power of despots; and must continue to influence all mankind, until the old doctrine, that the convenience and welfare of the many, must yield to the caprices and contumely of the few, shall be scouted from the earth. I need only cite our own glorious Revolution as a most illustrious and successful example of the spread of liberal opinions.

Another feature of modern cultivation, is the fact, that modern

enlightened nations literally learn war no more. Negotiation, compromise and concession, inspired by a spirit of justice and regard to the general good, now amicably settle questions that, thirty years ago, would have been amply sufficient to have plunged nations in destructive warfare: for example, five years ago the French attacked the citadel of Antwerp, then garrisoned by Dutch troops, and after severe fighting, reduced the citadel to a mass of ruins, and compelled the Dutch to surrender; yet this produced no war between France and Holland. The prisoners were conveyed to their country, and the two nations continued in peace with each other. Could any man have prophesied twenty-five years ago, that such a change would come over the minds of men, and the policy of nations, on the subject of peace and war, as this, he would have been called a madman; yet we live to see it a matter of history, and it has resulted from the greater intellectual cultivation of our period.

Another result is, the equal administration of justice, and the general spread of constitutional and civil law; the former made by the people to govern their legislators in the enactment of laws, and the latter, the rules enacted by legislators to govern all departments of civil society; and are designed to dispense equal justice to the greatest and the weakest citizen. The rights of property are well defined, and no arbitrary despot allowed to violate the sacredness of public, or private rights. Every where industry is stimulated and encouraged by the fullest assurance of protection; so sacred are private rights esteemed in this country and England, that a man's house cannot be entered for his arrest, unless for a crime against the state. How unlike the history of ancient times, when universally the will of one man, or more rarely of a despotic few, disposed of the liberties, the fortunes, and even lives of multitudes, without the accusation of crime, or the form of trial. This is even now the case with three-fourths of Asia, nine-tenths of Africa, and much of Europe; no wonder that they should continue barbarians. It is intellectual culture, that has given us a better state. Another instance; formerly when the sun or moon became eclipsed, nations quaked with fear; armies would refuse to go to battle, or fleets to set sail; but increased knowledge has explained



to the moderns, the causes of these natural phenomena, divesting them of all grounds of terror, and enabling us to predict their occurrence with unerring certainty for ages; comets that even at the commencement of the last century, were considered as objects of unutterable terror, are now viewed with great curiosity, but not with dread.

Another effect of greater increase of correct knowledge, is the strong efforts made to alleviate the condition of prisoners, and administering justice, not for vengeance, but for reformation. What a striking contrast between the dungeons of the Bastile, and the prisons of Pennsylvania; in the former, persons for very slight offences were imprisoned during thirty, forty, and fifty years, without seeing the light of day, or any human being, save the jailor, and suffering the horrors of a living burial. With us all is kindness; pity follows the prisoner to his cell, and compassion hopes, and experience proves, that often, even the most hardened, may be reformed, and restored to usefulness and society.

Equally striking, is the treatment of prisoners taken in war. Formerly among barbarians, death itself might have been considered preferable. Witness the thousands of prisoners "butchered to make a Roman holiday." Now kindness to them, has become a law of nations, that few dare violate.

In public works, we see a most striking contrast between the ancients and moderns. The great works of the ancients are mostly confined to the pageantry of vast buildings, Temples, Mausoleums, &c., whose ruins strike the beholder with astonishment: for example, the Parthenon at Athens; the Coliseum, the Palace of the Cæsars, and the Temples of Jupiter at Rome; the Pyramids of Egypt, the last, still perfect. The Romans in the height of their glory, constructed a few roads and aqueducts, but the public works of the State of Pennsylvania, are probably equal to all the public improvements of the whole Roman empire, edifices excepted; and perhaps the Romans built a few more bridges. The Engineers of our times are not daunted by the most rapid and frightful rivers, or the highest mountains. In all the public works of the ancients, there is nothing equal, certainly not superior, to the iron bridges of the moderns: as an example, the Menai Bridge, which crosses

the Menai Strait, and connects the Island of Anglesea to the coast of Caernarvonshire in Wales, and the Trafalgar Bridge over the Thames, at London; we might also mention several iron bridges in Switzerland, the great road of Napoleon over the Simplon, &c. The great science of the modern engineer enables him to project the boldest works with safety, and execute them with unerring certainty. He carries his road or canal to the foot of the tallest mountains, and if they can neither be turned nor crossed, nothing daunted, he boldly tunnels through their bases, cutting alike the quicksands and the solid rock. Here again, we may remark the utility of an agent we have before named, that is gunpowder, and may add, that without its aid, a vast amount of our public works could not be completed, except at almost infinitely increased expense and labor. One barrel of gunpowder judiciously employed, will do the work of a thousand men.

The sciences of geology, botany, zoology, entomology, &c., nearly owe their very existence to the inductive philosophy, and are almost entirely the result of modern intellectual cultivation.

As intellectual cultivation has diffused, through all classes of society a love and taste for elegance, splendor and beauty, so it has also enlightened the artisans, and enabled them to develop, diversify and multiply all the objects of beauty, taste and necessity; which swell, to such a vast amount, the merchandise and manufactures of all polished countries. It is by the aid of modern chemistry that most of our beautiful colors are produced. The result of all is to produce a thousand artificial wants, which, instead of impoverishing, greatly enrich the State.

Enlightened education has improved the social condition of at least one half of the souls inhabiting the civilised portions of the globe, in a manner so important and remarkable as to be worthy of gratitude, pleasure and pride. This is the improvement in the condition of females. In all pagan, in all idolatrous, in all uncivilised countries, woman is and always has been considered as much a slave as companion. This is as true in all the barbarous countries of modern times, as it was among the ancients. In all the Mahomedan countries, Turkey, Egypt, Arabia and Persia, women are treated as slaves, and even sold; whilst deviation from the will

of their masters is punished with a rigor and severity that barbarians only know. In many places women are denied even to have souls. All over the East it is rare that any education is allowed them, or that they are considered worthy of it. Other nations compel their females to perform all the drudgery of field labor. This is the case with the aborigines of America. In the uneducated portion of the truly civilised communities women are allowed, and often compelled to perform the most menial services, and suffer the most exposed hardships, but among civilised, Christianised and educated communities how the scene is changed: instead of being a slave, she often leads captive the lords of creation: every where politeness, courtesy and indulgence are extended to her: all that is rich and beautiful in the products of sea and land, all that is most prized and precious in the products of the arts; in fact, all that can improve her mind, cultivate her understanding, gratify her taste or contribute to her pleasure, are freely and unsparingly bestowed; so that, as the great Author of nature has made her the most beautiful of all his creatures, cultivated man consecrates all his wealth, his genius, his intellectual and physical powers, to make her the most happy of all intellectual beings; rendering her at once the charm and solace of mankind.

As intellectual and scientific cultivation have produced such wonderful development and improvement in the sciences, in the arts, and in all the social relations of society, we will ask, have equally great improvements taken place in that science which relates to our physical constitution—that of medicine and surgery? Have these sciences participated in the general amelioration? We answer, that not one of all the sciences has been benefitted more than medicine and surgery. Here the benefits of the inductive philosophy, freedom of discussion, freedom of thought, and the advantages of the art of printing, are shown in the happiest light. The discoveries in medicine are known and felt every where. Diseases are now boldly met and promptly cured that not long ago swept away multitudes and mocked all the curative arts then known. It is not only in the cure of diseases, but in their prevention, that medicine now shines conspicuously as the personification of benefit: for example, the adoption of vaccination as a preventive measure against



the ravages of the small-pox: this alone has saved the lives of millions. Formerly the mother looked upon her infant with the dreadful anticipation that as soon as, or before maturity, it would be either carried off by the small-pox, or certainly more or less disfigured for life. Here we have a striking example of the difference between the enlightened and unenlightened nations or communities. In England and the United States, by means of the press, a knowledge of the benefits of the vaccine disease spread with the greatest rapidity, and its universal adoption and application almost at once followed. But among ignorant and uncivilised communities it was very late and very reluctantly adopted. I will mention two instances illustrative of our position. In New England, within five years after the vaccine discovery was made known, and its claims fully established, it was universally adopted and employed; so that it is extremely rare to see any native of that country disfigured by the small-pox: whilst in the neighboring state of Lower Canada, amongst the French population, a people notorious for their ignorance and superstition, it was very slowly and sparsely introduced, and made very little progress for twenty-five years, and at last was only introduced by a system of bounties and rewards, paid by the British government to the Canadian physicians. At this time more than half of the French Canadians are disfigured by the small-pox. We may also add, that the knowledge of the human constitution and the laws of animal life are so well understood, and the rules of medical practice based upon such correct principles, that on the accession of new diseases not before known, the physicians are not long at fault, but soon learn to stay their progress. The history of the ravages of the cholera is alone sufficient to fix an unappreciable value upon intellectual and scientific cultivation. Over all the East it destroyed multitudes, depopulating, in some cases, towns and cities. No rational plan of cure could they devise; but when this scourge entered the cultivated parts of Europe, they soon learned to treat it, and in a large majority of cases, successfully. So alike is ignorance under every name, and so alike the superstitions of modern to the practices and superstitions of ancient pagan Rome, that we have seen, within three years, twenty thousand Roman citizens,

with an immense procession of priests, carrying a poor miserable daub of a picture through the streets, from church to church, with a view to avert the cholera. But among enlightened people, a correct knowledge of medicine taught us to cleanse our streets, our houses, dwellings, &c., and to meet the attacks of the disease with calmness and treat it with skill. We are, however, compelled to say, that there are still diseases that we cannot cure—the knowledge of whose curative agents have not been made known to us. Although this humiliating fact must be acknowledged, yet still with gratitude to a kind, overruling Providence we have to boast, that the improvements in medicine and surgery within the last hundred years, in cultivated countries, have doubled the length of human life, besides alleviating and obviating an amount of human suffering that is entirely beyond our powers of computation.

In our inquiries, one of the most interesting questions that can be asked is, whether it is not possible for us to attain to much greater longevity than we have been accustomed to consider as the maximum of human life? whether the average of our years cannot be greatly increased? whether the great age to which some persons have attained may not be so extended as to be enjoyed by all the community? whether the various causes that have united to give one man a long life may not be of such a nature as to be analysed and created again, and made of general and universal application? whether, in fact, it is not possible for us so to regulate our habits, diet, occupations and exertions, as to insure to us all the attainment of mature old age? My own opinion is in the affirmative of these questions, and that the average duration of human life is on the increase in cultivated communities, and is susceptible of a surprising extension.

To prove to you that there are no natural causes why we should not live to a good old age, and even great age, and that early death results from accidental, not natural causes, we have only to show you examples of persons who have attained to great age; proving that the great Author of nature has not planted within our frames originally, such seeds of early dissolution as will always prevent the attainment of long life.

Passing over the ages of the Antediluvians, which the Bible proves were of far greater periods than our own, we will come down to times of authenticated history, and will notice a few cases of great longevity. Thomas Parr, as recorded by Lord Francis Bacon, was born in 1483, and died in 1635, aged 152 years. He died not from the disease or decay of a single organ, but from Plethora, caused by more than usual indulgence in eating and drinking. His body was examined by the celebrated Harvey, the discoverer of the circulation of the blood, whom we have before mentioned, and who has left an account of the examination. Parr enjoyed good health for a century and a half. Thirty-five years after the death of Parr, Henry Jenkins, of Yorkshire, England, died, aged 169 years. He was born in 1501, and died in 1670; his age is fully authenticated, and is the greatest among the moderns. John Edlingham, of Cornwall, England, died in 1757, aged 147 years. Margaret Forster, of Cumberland, England, died in 1771, aged 136 years. James Lawrence, a Scotchman, lived 140 years. In 1772, a man named Drakenburg, died in Denmark, in the 147th year of his age. Thirty-six years ago, a man named Joseph Surrington, died at Bergen, in Norway, aged 160 years. In 1826, a man named Henry Francisco, died at Whitehall, in the State of New York, aged 134 years. He beat the drum at the coronation of Queen Anne, and was then 16 years of age. He died not by decay of his powers, but of a fever. In 1825, Pope Leo XII. granted to a poor man, living near Lake Thrasimene in Italy, a pension, on account of his great age; he was then 125 years old; he died aged 130 years. In 1830, a man died at St. Petersburg, aged 130 years. Through the medium of the records of the Russian Greek Church, we learn the death of a man in Russia, in 1831, aged 165 years. About three years since, a woman died in Tennessee, aged 154 years. We could add many more to this list, but forbear; those we have mentioned are drawn from records that do not admit of a doubt, and prove to us most conclusively, that our lives may be prolonged much beyond the present ordinary term. From the narratives of individuals, we will turn to the history of communities, where the interesting fact is still pressed upon us that the duration of human life is vastly on



the increase among educated communities, and that it has doubled within the last one hundred years. If asked how we arrive at the ages of persons in whole communities, we reply, that it is by means of the census or enumeration of the people taken at different periods; and also, from bills or records of mortality. Records of mortality have been kept in comparatively few places, but wherever they have been preserved, we uniformly find that mortality has decreased in a ratio, proportionate to the progress of intellectual cultivation. This fact is so true, that we are at full liberty, and are fully justified in saying that all the persons composing this auditory, do, and will enjoy, double the length of life that the same number of persons of like habits and occupations would have possessed 100 years ago.

This truth affords a strong argument for us to contend earnestly for the utmost possible spread of intellectual cultivation. The subject is very extensive, and will allow of mentioning only a few of the results. According to Pliny, a census of all Italy was taken in the year 72 of the Christian Era; regular tables of the mortality among the easy classes of Roman citizens (not laborers or slaves) were kept by the censors for 1000 years. According to these tables, the mean duration of life among the easy classes at Rome, was 30 years. The average lives of the same classes in London at this time, is 50 years; showing that the citizens of London live 20 years longer than did those of Rome. The mean duration of life with the same classes in the city of Paris, is 42 years, giving them an advantage over Rome of 12 years, and less than London of 8 years, or 16 per centum; so much for a comparison between the cities of Rome, London and Paris. We will now compare each of the two last places with itself, at different periods, and shall see that the improvements even for the last 86 years, in medicine, in surgery, in all the principles of hygiene, and in every thing that contributes to the well-being of man, have produced the most extraordinary results in the continuance of his life. The annual mortality in London was, in 1751, 1 in 21 persons; in 1801, 1 in 35; in 1811, 1 in 38; and in 1821, 1 in 40 persons. We will remark, that where large numbers of people are crowded together in a city, they are more apt to die early than if less

thickly settled ; taking this fact into consideration, the population of London has considerably more than doubled its duration of life, within the last 100 years. In Paris, in the 14th century, the annual mortality was 1 in 16; in 1750, 1 in 25; in 1830, 1 in 32. In the city of Geneva, records of mortality have been kept since 1590, which show, that a child born there now, has five times greater expectation of life, than one born three centuries ago.

Our principles hold good under every form of application or comparison, all other things being equal: for example, this city is the healthiest in the world; the annual mortality here is, 1 in 45.68 Glasgow, in Scotland, 1 in 44; Boston, 1 in 41.26; New York, 1 in 37.83; Baltimore, 1 in 35.44; London, 1 in 40; Paris, 1 in 32; Rome, 1 in 25; Vienna, 1 in 22½. Now if we compare all these cities, making allowance for the differences of climate, &c., we are forced to the conclusion, that intellectual cultivation has, and does, exert an immense influence in prolonging human life. You will all agree with me that knowledge is very far from having reached its fullest development, and consequently, that generations yet to come, will attain to much greater ages than at present are accorded to us.

Intellectual cultivation possesses the properties ascribed to a perpetual motion; it is never idle, it never decays, it never dies. It is instinct with life, wheels within wheels, each endowed with living powers, fully possessing within itself the principles of renovation and restoration. Hence, all the kingdoms, empires and governments whose power is swayed by intellect, rather than brute force, whose subjects obey the majesty of the laws, and the dictates of right, not from blind discipline, but from intellectual suasion; I say, those governments are always in repair, always in a process of renovation. Are there wrongs in the state, the eye of intelligence detects, and hastens to remove them. Are there statutes, laws, or customs that by time, like portions of an aged tree, have become decayed and dead, the hand guided by correct knowledge knows how to excise them, and effect their gentle and effectual removal without destroying the parent stock, or subjecting the state to the shock of revolutions. No terrible convulsions rend the structure of such constitutions, but by easy and gradual



changes the path of perfection is attained. In proof of this, we have only to notice the origin and history of the French Revolution, when brute force was directed by cannibal passion, and the darkest ignorance. You all know the result. They shed oceans of each others blood, and then settled down into a worse tyranny than before oppressed them. On the other hand, the intelligent people of England, have for years been slowly and cautiously engaged in correcting their own constitution; guided by the highest intelligence, each year takes something from their old form of government, which, without weakening its strength, or shocking the fabric of society, will in a few years present an almost faultless system of laws; so far from intelligent governments exhibiting symptoms of decay, we daily see them removing all things that can remotely destroy the state. I have thus dwelt long upon the influence of intellectual cultivation, but it would be vain for me to attempt to mention the details of its action or application. They are so multifarious, so all pervading in the operations of intelligent communities—knowledge infused into the mind of the builder, and behold up rises the spacious palace with all its decorations, strongly savoring of fairy land—inspiring the architect, he lays deep his foundations, and with unerring certainty stretches his arch to span the broadest rivers, and we pass the terrific floods in safety—stimulating the engineer if mountains interpose between him and his purposes, he awakes the slumbering earthquake and bids it rend the everlasting hills, and make a way for the passage of human enterprise—inciting the artisan, we see rising from his hand the most gorgeous fabrics, rivalling nature in all her forms of beauty—influencing the philanthropist, we see human wrongs redressed, human suffering assuaged, and angry human passions calmed—leading the rulers of empires, we see Justice with even hand poise her balances over the nations—shining clearly on communities, it teaches in letters of light, that the great principle of order and protection, is in “doing to others as we would they should do to us”—guiding the husbandman, he brings from the teeming earth those rich productions that give us strength in action, and gratitude in repose; affording sustenance to multitudes, that in a barbarous state could



have lived but a short period to have died of want; and gives us the full assurance, that so long as knowledge shall cultivate the earth, all the multitudes of human beings will never want for food, or tremble at the mention of famine—conducting the physician, she tenfold reduces our sufferings, and doubles the length of our lives. We may ask what constitutes those vast differences existing between man and man. It is knowledge. Go to the halls of legislation! Go to the benches of justice! Go to the schools of medicine, of law, of the arts; and what is it gives some men such control over their fellows. We answer it is knowledge, superior intellect, superior acquirement.

*Gentlemen of this Association,*

I will not so far undervalue your appreciation of intellectual cultivation, as to urge you to the pursuit of knowledge: your association proclaims to the world your zeal in this cause, and the sacrifices you are willing to make in the pursuit of education. I need not tell you that the great roads to distinction are wide and open. I need not say that the temple of fame still spreads wide its ample gates, and invites you to contend for a seat on its high places. I need not tell you that that young man whom knowledge distinguishes as at the head of the young men, has only to remain steady at his post, and time will place him at the head of all that is respectable in coming years.

One word, and our subject is done. It will be the ardent desire of the speaker, in the proposed future lectures, to give you a general and distinct knowledge of the structure of our frames, and the general phenomena that govern animal life; without, however shocking your taste, or wearying you with lengthened details. He will endeavor to impart to you so much knowledge of the science of Anatomy and Physiology, as will expand your views on these subjects, give you increased powers of conversation, and enable you, perhaps, in cases of emergency, to save your own or the lives of others.